

Appl. No. 09/945,505  
Reply dated January 23, 2004  
Reply to Office Action mailed August 26, 2003

### Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

#### Listing of Claims:

1-12 (cancelled)

13. (currently amended) An isolated oligonucleotide, having 15 to about 100 nucleotides, wherein the oligonucleotide is designed for detecting a polymorphism in the tumor necrosis factor receptor superfamily, member 1A (TNFRSF1A) gene at a polymorphic site (PS) selected from the group consisting of PS1, PS4, PS12, PS14, PS15, PS17 and PS18, wherein the selected PS have ~~has~~ the position and alternative alleles shown in SEQ ID NO:1, and wherein the oligonucleotide specifically hybridizes to an allele of the selected polymorphic site, or the complement of the allele, or the oligonucleotide specifically hybridizes to a region of SEQ ID NO:1 located one to several nucleotides downstream of the selected polymorphic site, or to the complement of the region.
14. (currently amended) The isolated oligonucleotide of claim 13, which is an allele-specific oligonucleotide that specifically hybridizes to an allele of the ~~TNFRSF1A gene at a region containing the selected~~ polymorphic site.
15. (currently amended) The allele-specific oligonucleotide of claim 14, which comprises a nucleotide sequence selected from the group consisting of SEQ ID NOS:4-10, the complements of SEQ ID NOS:4-10, and a sequence terminating in one of SEQ ID NOS:11-24.
16. (original) The isolated oligonucleotide of claim 13, which is a primer-extension oligonucleotide.
17. (currently amended) The primer-extension oligonucleotide of claim 16, which comprises a nucleotide sequence terminating in a sequence selected from the group consisting of SEQ ID NOS:25-38.
18. (original) A kit for haplotyping or genotyping the tumor necrosis factor receptor superfamily, member 1A (TNFRSF1A) gene of an individual, which comprises a set of oligonucleotides designed to haplotype or genotype each of polymorphic sites (PS) PS1, PS4, PS12, PS14, PS15, PS17 and PS18, wherein the selected PS have the position and alternative alleles shown in SEQ ID NO:1.

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19. (original) The kit of claim 18, which further comprises oligonucleotides designed to genotype each of PS2, PS3, PS5, PS6, PS7, PS8, PS9, PS10, PS11, PS13 and PS16, having the location and alternative alleles shown in SEQ ID NO:1.

20. (currently amended) An isolated polynucleotide comprising a nucleotide sequence selected from the group consisting of:

- (a) a first nucleotide sequence which ~~comprises~~ consists of a human tumor necrosis factor receptor superfamily, member 1A (TNFRSF1A) isogene encoding a TNFRSF1A polypeptide with a domain capable of binding TNF $\alpha$ , wherein the TNFRSF1A isogene comprises nucleotides 2920-4210, 11417-12926, and 14634-16768 of a sequence selected from SEQ ID NOS:42-62, 64-68; and
- (b) a second nucleotide sequence which is ~~complementary to the complement of~~ the complement of the first nucleotide sequence.

21. (original) The isolated polynucleotide of claim 20, which is a DNA molecule and comprises both the first and second nucleotide sequences and further comprises expression regulatory elements operably linked to the first nucleotide sequence.

22.-23 (canceled)

24. (currently amended) An isolated fragment of a ~~tumor necrosis factor receptor superfamily, member 1A (TNFRSF1A) isogene~~ the first nucleotide sequence of claim 20, wherein the fragment comprises at least 15 contiguous nucleotides in one of the regions of SEQ ID NO:1 selected from nucleotides 2920-4210, 11417-12926, or 14634-16768 of the first nucleotide sequence and wherein the at least 15 contiguous nucleotides of the first nucleotide sequence fragment comprises includes one or more polymorphisms selected from the group consisting of thymine at PS1, guanine at PS4, adenine at PS12, thymine at PS14, thymine at PS15, adenine at PS17 and adenine at PS18, wherein the nucleotide positions in SEQ ID NO:1 of the polymorphisms in the fragment correspond to the following positions in SEQ ID NO:1: are 3102 for PS1, 3603 for PS4, 14824 for PS12, 15089 for PS14, 15093 for PS15, 15932 for PS17 and 16165 for PS18.

25. (currently amended) An isolated polynucleotide comprising a TNFRSF1A coding sequence ~~or its complement~~, wherein the coding sequence ~~comprises~~ consists of SEQ ID NO:2, except for being substituted with a variant base selected from the group consisting of a thymine at position 224; an adenine at position 362; a cytosine at position 403; and an adenine at position 935.

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26.-27. (canceled)

28. (currently amended) An isolated fragment of a ~~TNFRSF1A cDNA coding sequence~~, wherein the fragment ~~comprises~~ consists of (a) at least 15 contiguous nucleotides of SEQ ID NO:2 that includes a polymorphism selected from the group consisting of adenine substituted at a position corresponding to nucleotide 935 of SEQ ID NO:2, or (b) the complement of (a), in SEQ ID NO:2, thymine at position 224 in SEQ ID NO:2, adenine at position 362 in SEQ ID NO:2, and cytosine at position 403 in SEQ ID NO:2,

29.-33. (canceled)

34. (currently amended) A genome anthology for the tumor necrosis factor receptor superfamily, member 1A (TNFRSF1A) gene which comprises two or more TNFRSF1A isogenes, wherein each selected isogene encodes a TNFRSF1A polypeptide with a domain capable of binding TNF $\alpha$  and wherein each of the selected isogenes isogene comprises nucleotides 2920-4210, 11417-12926, and 14634-16768 of a sequence selected from SEQ ID NOS:42-68.

35. (previously presented) The isolated polynucleotide of claim 20, wherein the isogene encodes a TNFRSF1A polypeptide identical to SEQ ID NO:3 and wherein the isogene is selected from the group consisting of isogenes 1,2,3,4,5,6,7,10,11,12,13,15,16,18,20, 21,22, 23,24,25,26 and 27.

36. (withdrawn) The isolated polynucleotide of claim 20, wherein the isogene is isogene 19, encoding a TNFRSF1A polypeptide identical to SEQ ID NO:3 except for having a lysine at amino acid position 312.

37. (withdrawn) The isolated polynucleotide of claim 20, wherein the isogene is isogene 8 and encodes a TNFRSF1A polypeptide identical to SEQ ID NO:3 except for having a glutamine at amino acid position 121.

38. (withdrawn) The isolated polynucleotide of claim 20, wherein the isogene is isogene 9 and encodes a TNFRSF1A polypeptide identical to SEQ ID NO:3 except for having a histidine at amino acid position 135.

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39. (withdrawn) The isolated polynucleotide of claim 20, wherein the isogene is selected from isogenes 14 and 17 and encodes a TNFRSF1A polypeptide identical to SEQ ID NO:3 except for having a leucine at amino acid position 75.
40. (new) An isolated fragment which is the complement of the fragment of claim 24.
41. (new) An isolated double-stranded fragment consisting of the isolated fragment of claim 24 and its complement.
42. (new) An isolated double-stranded fragment consisting of (a) at least 15 contiguous nucleotides of SEQ ID NO:2 that includes adenine substituted at a position corresponding to nucleotide 935 of SEQ ID NO:2 and (b) the complement of (a).
43. (new) The kit of claim 18, wherein each oligonucleotide is at least 15 residues in length.
44. (new) The isolated polynucleotide of claim 20, wherein the TNFRSF1A isogene comprises nucleotides 2920-4210, 11417-12926, and 14634-16768 of SEQ ID NOS:43.
- 45 (new) The genome anthology of claim 34, wherein at least one isogene comprises nucleotides 2920-4210, 11417-12926, and 14634-16768 of SEQ ID NO:43.